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Risk factors associated with persistence of staphylococcus aureus bacteremia

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Background: *Staphylococcus aureus* bacteremia (SAB) is one of the serious nosocomial or community acquired infections. SAB can persist longer as compared to bacteremia with other bacteria, although whether risk factors associated with persistent SAB which pointed out in previous studies are related to its persistency of SAB in the settings with different antibiotic resistant rate and different antibiotic use. In this study, we determined clinical characteristics and risk factors for persistent SAB by comparing persistent SAB cases and non-persistent SAB cases in Japan.

Methods & Materials: All the first episodes of adult SAB cases in 1,150 bed academic medical hospital in Japan form May 2009 through April 2014 were enrolled. The onset of SAB was defined as the time when the first positive blood cultures were collected. Persistent SAB was defined as a case in which positive blood culture persisted 72 hours or longer, and non-persistent SAB was defined as a case negativity of blood culture was verified within 72 hours. Clinical backgrounds, primary infection sites, methicillin resistant or not (MRSA or MSSA), vancomycin susceptibility, and antibiotic use were retrospectively reviewed from medical records.

Results: Of 618 SAB cases, MRSA cases and MSSA cases were 293 and 325 cases, respectively. Persistent SAB were 42 cases, non-persistent SAB were 34 cases. Median persistent periods of persistent SAB and non-persistent SAB were 2 days and 8 days, respectively. Clinical backgrounds and primary infection sites primary infection sites were similar between the two groups. The rate of MRSA was in persistent SAB was statistically higher than that of non-persistent SAB (93% vs 35%, P<0.001)(Fig. 1). Although susceptibilities to vancomycin, were similar between the two groups, the timing of susceptible antibiotics use in persistent SAB was later than that in non-persistent SAB (2 days vs 0 days, P <0.001) (Fig. 2).

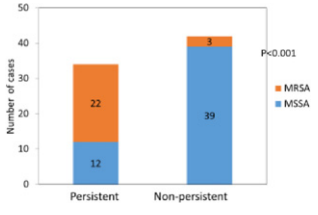

Fig. 1. Methicillin susceptibility of SA and SAB persistence.

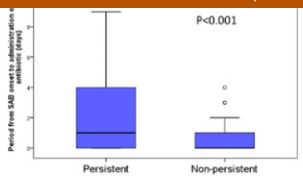

Fig. 2. Delay of antibiotic use and SAB persistence.

Conclusion: In our study, persistence of SAB were associated with MRSA as a pathogen, delay in susceptible antibiotic use, but not with clinical backgrounds nor with vancomycin susceptibilities.

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Comparison of the outcome of clostridium difficile infection between patients treated with metronidazole and patients treated with vancomycin: A multi-center retrospective cohort study in Japan

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Background: The rising incidence and worsening severity of *Clostridium difficile* infection (CDI) have prompted improvements in the treatment of CDI in many countries. Vancomycin (VCM) and Metronidazole (MNZ) are both widely used. VCM may bring about a better clinical response and outcome than MNZ in treating CDI, especially severe CDI. The optimal treatment for CDI, however, has yet to be established in Japan. Dosages and durations of medications for CDI have not been clearly described in previous studies, and MNZ has only recently been approved for CDI under the national health insurance system. Our group conducted Japan's first multi-center retrospective study to investigate the optimal treatment for CDI by comparing outcomes between MNZ- and VCM-treated groups at variable dosages and treatment durations.

Methods & Materials: CDI patients hospitalized at four teaching hospitals from April 2012 through September 2013 were enrolled. CDI was diagnosed when CD toxin was positive by enzyme immunoassay test in stool. The patients were treated for 10-14 days with oral MNZ (1000 or 1500 mg per day: MNZ group) or oral VCM (500 mg per day: VCM group). Kaplan-Meier curves were created to compare the survival curves between MNZ- and VCM-treated patients.